

Names: _____

/ 15

Period: _____ Table: _____

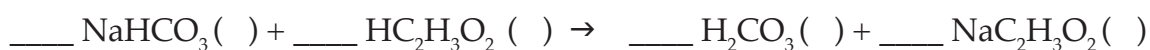
Supplies:

- | | |
|----------------------------|---|
| 1 Plastic Spoon (Teaspoon) | 1 Beaker of Baking Soda (NaHCO_3) |
| 1 Funnel | 1 Beaker of Vinegar ($\text{HC}_2\text{H}_3\text{O}_2$) |
| 1 Balloon | 1 Apron per person |
| 1 Graduated Cylinder | 1 Goggle per person |
| 1 Scale | |

Research:

The chemical reaction between Vinegar ($\text{HC}_2\text{H}_3\text{O}_2$) and Baking Soda (NaHCO_3) is actually two reactions. The first double-replacement reaction yields Carbonic Acid (H_2CO_3) and Sodium Acetate ($\text{NaC}_2\text{H}_3\text{O}_2$). In the second decomposition reaction, the Carbonic Acid breaks-down into Carbon Dioxide (CO_2) and Water (H_2O).

Chemical Equations:



Reactants	Products

- _____ Synthesis
 _____ Combustion
 _____ Decomposition
 _____ Single Replacement
 _____ Double Replacement



Reactants	Products

- _____ Synthesis
 _____ Combustion
 _____ Decomposition
 _____ Single Replacement
 _____ Double Replacement

Pre-Lab Procedure:

1. Gather supplies.
2. Put on Goggles and Apron.
3. Balance each equation [1]
4. Identify the Reaction Types of each reaction above [1]
5. Identify / Predict what the state (solid - liquid - gas) of the products will be. [1]

Lab Procedure:

1. Read this Lab Procedure, then draw a set-up below and answer the questions. You will not be given the supplies until this is done.
2. Blow-up the balloon 5-times to loosen it up.
3. Place Funnel in balloon and pour the baking soda into the balloon.
4. Pour 25 mL of vinegar into the graduated cylinder.
5. Stretch the balloon over the mouth of the graduated cylinder. Leave the balloon floppy. DO NOT ADD THE BAKING SODA TO THE GRADUATED CYLINDER YET.
6. Take the mass of both the balloon on the graduated cylinder and record it in the data table on page 3.
7. Tip the balloon to add the baking soda to the vinegar.
8. Observe the reaction. Record your observations on page 3.

Set-up: Draw and label the “before” set-up (Step #6) and the “after” set-up (Step #8) below. [2]

Pre-Lab Questions: Answer the questions below *in complete sentences*. [1 each]

- Q1. What do you expect to happen during the experiment? Explain.
- Q2. Do you expect the reaction to be exothermic or endothermic?
- Q3. Do you expect the mass of the assembly to increase, decrease or stay the same as the experiment progresses? Explain why.

Data Table: [1]

Reactant Mass	Product Mass

Observations: Record your observations *in complete sentences. Use your senses.* [2]

Post-Lab Questions: Answer the questions below *in complete sentences.* [1 each]

- Q1. What to you think is in the balloon? What did the balloon do? Explain why.
- Q2. What do you think is in the graduated cylinder?
- Q3. Was the exothermic or endothermic? How can you tell?
- Q4. Did the mass of the assembly increase, decrease or stay the same as the experiment progresses? Explain why.